# SUBJECT INDEX

## Advanced Materials & Processes

*January-June 1994, Vol. 145, No. 1-6*

In the index listing for each article, the first number is the issue number; the second, the page in that issue. Issue numbers are: 1, January; 2, February; 3, March; 4, April; 5, May; 6, June. Note: Materials Progress news stories and *ASM News* articles are not indexed.


### AEROSPACE

Aluminum-Lithium Alloys: The Next Generation ..... 5-18
Bigger and Better Titanium Forgings 3-32
Development of a Carburizing Stainless Steel Alloy ..... 6-89
Getting Tough With Epoxy Resins ... 3-29
Noise Control in Ducts: A Must for Aircraft ..... 5-53
Selective Reinforcement of Titanium Investment Castings ..... 4-37
Superplastic Forming of Alloy 718 ... 4-32

### ALUMINUM ALLOYS

Aluminum-Lithium Alloys: The Next Generation .....5-18
Aluminum Takes to the Road ..... 1-42
Materials Systems for Manufacturing Solutions, in Materials Engineering 2000 and Beyond: Strategies for Competitiveness ..... 1-30

### AUTOMOTIVE

Aluminum Takes to the Road ..... 1-42
Magnesium Castings for Auto Applications ..... 6-28
Stainless Steel for Automotive Exhaust Systems .....3-18

### BUYERS GUIDES

Thermal Spray Buyers Guide ..... 5-37

### CAST IRON

Cast Austempered Ductile Iron for High Strength and Long Wear .....2-40

### CERAMICS

Improved Process for Manufacturing Carbon/Carbon Composites ..... 3-35

### CHEMICAL ANALYSIS

Digital Signal Processing for Energy-Dispersive Spectroscopy ...2-35

### COMPOSITES

Getting Tough With Epoxy Resins ... 3-29
Improved Process for Manufacturing Carbon/Carbon Composites ..... 3-35
Interference-Layering Metallographic Technique Wins 1993 Jacquet-Lucas Award ..... 2-21
Metal-Matrix Composites, in Materials Engineering 2000 and Beyond: Strategies for Competitiveness .... 1-28
Selective Reinforcement of Titanium Investment Castings ..... 4-37

### COMPUTER APPLICATIONS

Materials Science and Technology Databases ..... 4-41
Unlocking the World's Materials Knowledge. ..... 6-33

### CONFERENCE/SHOW PREVIEWS

Thermal Spray Technology Update (Preview of NTSC '94) .....5-30

### COPPER ALLOYS

Selecting Coppers and Copper Alloys, Part I: Wrought Products ..... 2-26
Selecting Coppers and Copper Alloys, Part II: Cast Products ..... 6-20

### DATASHEETS

Summary Table of Titanium Alloys .. 6-123

### EDITORIALS

*ASM News* Joins *AM&P* ..... 1-4
Back to the Future: ASM's new Heat Treating Society ..... 3-36D
'Flight of the Navigator' ..... 3-2
High-Performance Industry ..... 4-2
The Industry Listens ..... 3-36C
The Material Advantage ..... 5-2
Miniature Masterpieces ..... 2-2
On Fantasy and Science Fiction ..... 6-2

### ENGINEERING MANAGEMENT

Materials Futurethink, in Materials Engineering 2000 and Beyond: Strategies for Competitiveness .... 1-22
Materials Science and Technology Databases ..... 4-41
Protecting Technological Innovation Through Patents .....1-69
Unlocking the World's Materials Knowledge ..... 6-33

### FERROUS METALS

Cast Austempered Ductile Iron for High Strength and Long Wear..... 2-40
Development of a Carburizing Stainless Steel Alloy ..... 6-89
Emerging Technologies in the Specialty Steel Industry, in Materials Engineering 2000 and Beyond: Strategies for Competitiveness .... 1-24
How to Select the Right Stainless Steel 4-20
How to Upgrade to Forgings ..... 3-20
Retained Austenite: New Look at an Old Debate ..... 3-25
Stainless Steel for Automotive Exhaust Systems ..... 3-18
Steelmakers Report Progress in Alloys and Processes ..... 1-36

### FORECASTS

Materials Engineering 2000 and Beyond: Strategies for Competitiveness .... 1-22

### FORMING

Superplastic Forming of Alloy 718 .... 4-32

### HEAT PROCESSING

Guide to Equipment Selection ..... 3-36BB
Improve the Fatigue Life of Titanium Alloys: Part I ..... 3-36V
A Practical Program for SPC in Heat Treating Plants: Part I ..... 3-36N
Retained Austenite: New Look at an Old Debate ..... 3-25

### JOINING

Explore the Potential of Capacitor Discharge Welding ..... 6-93

### MATERIALS SELECTION

Cast Austempered Ductile Iron for High Strength and Long Wear .... 2-40
Cobalt-Base Alloys Resist Wear, Corrosion, and Heat ..... 4-27
How to Select the Right Stainless Steel 4-20
Magnesium Castings for Auto Applications ..... 6-28
Selecting Coppers and Copper Alloys, Part I: Wrought Products ..... 2-26
Selecting Coppers and Copper Alloys, Part II: Cast Products ..... 6-20
Unlocking the World's Materials Knowledge ..... 6-33

### MELTING/CASTING/MOLDING

Selective Reinforcement of Titanium Investment Castings .....4-37

### METALLOGRAPHY

Interference-Layering Metallographic Technique Wins 1993 Jacquet-Lucas Award ..... 2-21
Optical Photomicrographs: Miniature Masterpieces ..... 2-24

### METALS PRODUCTION

Steelmakers Report Progress in Alloys and Processes ..... 1-36


*Continued*

# ADVANCED MATERIALS & PROCESSES®

**Published by ASM International**
**Materials Park, Ohio 44073-0002**

**Patricia E. Brooks**
*Publisher*
**Faye D. Balser**
*Editorial Coordinator*



*ADVERTISING OFFICES*

**New York City/New Jersey/ New England/Delaware/Washington, D.C./Maryland/Southeast/Southwest**
Robert T. Marchant
P.O. Box 514
Old Saybrook, CT 06475
Tel: 203/388-4014
Fax: 203/388-6542

**Ohio/New York State/Pennsylvania/ West Virginia/Kentucky/ Tennessee/Canada**
Vin LeGendre
P.O. Box 2114
Andover, MA 01810
Tel: 508/470-3331
Fax: 508/475-3398

**Illinois/Minnesota/Wisconsin/Missouri/ Indiana/Kansas/Iowa/Michigan**
John P. Banaski
P.O. Box 687
St. Charles, IL 60174
Tel: 708/377-3311
Fax: 708/377-3311

**West**
Paul Conser
Paul Conser Associates
15720 Ventura Blvd., Suite 610
Encino, CA 91436
Tel: 818/501-4777
Fax: 818/906-2109

**Europe**
Patrick Connolly
99 Kings Rd., Westcliff-on-Sea,
Essex SS0 8PH, England
Tel: 44/702.77341
Fax: 44/702-77559

**Japan & Far East**
Germán S. Tajiri
IMI Corporation
Saito Lend Bldg.
13-5, Ginza 3-chome, Chuo-ku
Tokyo 104, Japan
03/546.2231

BPA INTERNATIONAL

**Reprints:** copies of *Advanced Materials & Processes* articles are available as reprints. For a quotation, contact the Production Coordinator. *Advanced Materials & Processes* is available on microfilm/ microfiche from University Microfilms International, 300 N. Zeeb Road, Ann Arbor, MI 48106.

ASM International is not responsible for statements or opinions in this magazine.



## NONFERROUS METALS

Aluminum-Lithium Alloys: The Next Generation ..... 5-18
Aluminum Takes to the Road ..... 1-42
Bigger and Better Titanium Forgings 3-32
Cobalt-Base Alloys Resist Wear, Corrosion, and Heat ..... 4-27
Improve the Fatigue Life of Titanium Alloys: Part I ..... 3-36V
Magnesium Castings for Auto Applications ..... 6-28
Materials Systems for Manufacturing Solutions, in Materials Engineering 2000 and Beyond: Strategies for Competitiveness ..... 1-30
New Titanium-Niobium Alloy Solves Autoclave Problem ..... 5-27
Selecting Coppers and Copper Alloys, Part I: Wrought Products ..... 2-26
Selecting Coppers and Copper Alloys, Part II: Cast Products ..... 6-20
Selective Reinforcement of Titanium Investment Castings ..... 4-37
Summary Table of Titanium Alloys (Datasheet) ..... 6-123
Superplastic Forming of Alloy 718 .... 4-32

## PLASTICS

Getting Tough With Epoxy Resins .... 3-29
Polymers: Challenges and Opportunities, in Materials Engineering 2000 and Beyond: Strategies for Competitiveness .... 1-33

## PROCESS CONTROL

A Practical Program for SPC in Heat Treating Plants: Part I ..... 3-36N

## PROCESS SELECTION

Explore the Potential of Capacitor Discharge Welding ..... 6-93
Guide to Equipment Selection ..... 3-36BB
How to Upgrade to Forgings ..... 3-20

## RESEARCH TOPICS

Materials Science and Technology Databases ..... 4-41

## STAINLESS STEELS

Development of a Carburizing Stainless Steel Alloy ..... 6-89
Emerging Technologies in the Specialty Steel Industry, in Materials Engineering 2000 and Beyond: Strategies for Competitiveness .... 1-24
How to Select the Right Stainless Steel 4-20
Stainless Steel for Automotive Exhaust Systems ..... 3-18

## SUPERALLOYS

Cobalt-Base Alloys Resist Wear, Corrosion, and Heat ..... 4-27
Superplastic Forming of Alloy 718 .... 4-32

## SURFACE ENGINEERING

Thermal Spray Buyers Guide ..... 5-37
Thermal Spray Technology Update (Preview of NTSC '94) ..... 5-30

## TESTING/CHARACTERIZATION

Digital Signal Processing for Energy-Dispersive Spectroscopy ..... 2-35
Interference-Layering Metallographic Technique Wins 1993 Jacquet-Lucas Award ..... 2-21
Optical Photomicrographs: Miniature Masterpieces ..... 2-24

## THERMAL SPRAYING

Thermal Spray Buyers Guide ..... 5-37
Thermal Spray Technology Update (Preview of NTSC '94) ..... 5-30

## TITANIUM ALLOYS

Bigger and Better Titanium Forgings .. 3-32
Improve the Fatigue Life of Titanium Alloys: Part I ..... 3-36V
New Titanium-Niobium Alloy Solves Autoclave Problem ..... 5-27
Selective Reinforcement of Titanium Investment Castings ..... 4-37
Summary Table of Titanium Alloys (Datasheet) ..... 6-123

## WELDING

Explore the Potential of Capacitor Discharge Welding ..... 6-93


# AUTHOR INDEX


Albright, Darryl L. ..... 6-28
Bertram, Jim L. ..... 3-29
Boiko, Karen ..... 3-36C
Bridenbaugh, Peter F. ..... 1-30
Brown, Robert S. ..... 4-20
Clark, R.C. ..... 5-53
Connelly, Michael B. ..... 3-36N
Crook, Paul ..... 4-27
Feldt, Jill ..... 4-41
Flemings, Merton C. ..... 1-22
Flower, H. Lee ..... 4-32
Franson, Ivan A. ..... 3-18
Friel, John J. ..... 2-35
Gregory, J.K. ..... 3-36V
Gurke, Sasha ..... 6-33
Henson, Rob ..... 5-27
Hunt, Margaret W. 1-4, 2-2, 3-2, 4-2, 5-2, 6-2
Juliano, Peter C. ..... 1-33
Kundig, Konrad J.A. ..... 2-26, 6-20
Laub, Jack R. ..... 2-40
Martine, Peter B. ..... 1-69
Mekwinski, J.C. ..... 5-53
Mott, Richard B. ..... 2-35
Palitsch, John R. ..... 3-32
Parrish, Justus ..... 3-25
Peters, Dale T. ..... 2-26, 6-20
Puckett, P. Mac ..... 3-29
Reynoldson, Ray W. ..... 3-36BB
Ruden, Thomas J. ..... 6-28
Scholl, Charles J. ..... 3-32
Shilling, Jack W. ..... 1-24
Smith, Gaylord D. ..... 4-32
Sullivan, Jim ..... 3-36D
Veeck, Stewart J. ..... 4-37
Wagner, L. ..... 3-36V
Webster, Donald ..... 5-18
Wert, David E. ..... 6-89
Wilson, Rick D. ..... 6-93
Woishnis, William ..... 6-33
Wojciechowski, Charles R. ..... 4-37
Wolter, George W. ..... 4-37
Xu, Yanger ..... 3-18
Zweben, Carl ..... 1-28